matical mill with an imposing number of figures is sufficiently difficult to eradicate without such examples by teachers!

Apart from a few blemishes of the kind alluded to, the book may still, forty-four years after its first appearance, be recommended as worthy of careful study. A. E. C.

The International Research Council.

International Research Council: Constitutive Assembly held at Brussels, July 18 to July 28, 1919. Reports of Proceedings. Edited by Sir Arthur Schuster. Pp. iii + 286. (London: Harrison and Sons, 1920.) Price 10*s.* 6*d.*

THE Constitutive Assembly of the International Research Council, which met at Brussels on July 18, 1919, established for certain subjects new international organisations to replace those existing before the war, and in this volume we have the official text of the statutes there adopted or proposed, as well as the *procès-verbaux* of the different meetings which were held.

It will be remembered that in October, 1918, a conference of the scientific academies of the Allied nations was held in London at the invitation of the Royal Society to consider the action which should be taken in regard to international associations; for some had lapsed during the war, and others were unlikely to meet in their old form for some years to come. The resolutions then agreed to were carried further at a second conference which was held at Paris in November of the same year, when the International Research Council was formed, and an executive committee appointed to prepare proposals to be submitted to the Constitutive Assembly at Brussels. The meeting at Brussels formed the third stage in the formation of the new international organisation which had been decided upon in London, and at it the statutes of the International Research Council and of the Unions for Astronomy, for Geodesy and Geophysics, and for Pure and Applied Chemistry were approved.

The legal domicile of the International Research Council is at Brussels, where the general assembly will meet from time to time; but this in no way restricts the Unions, the members of which determine the places of their bureaux and of their periodical meetings as they please. The countries participating in the foundation of the International Research Council are Belgium, Brazil, the United States, France, the United Kingdom, Australia, Canada, New Zealand, South Africa, Greece, Italy, Japan, Poland, Portugal, Rumania, and Serbia, in addition to which the following neutral countries were invited to join the Council: China, Siam, the Argentine Republic, Chile, Denmark, Spain, Mexico, the Principality of Monaco, Norway, Holland, Sweden, Switzerland, and also Czecho-Slovakia.

Besides the three Unions which were definitely established at the Brussels meeting, proposals were made that several others—mathematics, physics, radiotelegraphy, geology, biology, geography, and bibliography—should be formed, and draft statutes for these were presented in order that the executive committee might communicate them to the National Research Councils of the different countries for the desirability of forming such international unions to be considered. The machinery therefore exists for constituting an international organisation in any branch of science where it will be of service. Several countries have already formally signified their adherence to the International Research Council, and some also to the Unions which have already been formed.

It has been proposed that the draft statutes of the Mathematical Union should be discussed at an international meeting at Strasbourg this autumn, and doubtless representatives of other branches of science will hold similar meetings in due course to consider the desirability of forming unions of their own.

For all such meetings this volume of the proceedings and reports of the Brussels meeting will be of great value, for the general organisation differs from that of earlier associations, and may at first sight seem to be somewhat cumbrous; but a perusal of the documents now published will show that each union can provide itself with the constitution best suited to its own requirements, while conforming at the same time to the essential features of the International Research Council.

Problems of Population.

(1) *Problems of Population and Parenthood. (Being the Second Report of, and the Chief Evidence taken by, the National Birth-rate Commission, 1918–20.)* Pp. clxvi + 423. (London: Chapman and Hall, Ltd., 1920.) Price 25*s.* net.

(2) *The Social Diseases: Tuberculosis, Syphilis, Alcoholism, Sterility.* By Dr. J. Héricourt. Translated, and with a final chapter, by Bernard Miall. Pp. x + 246. (London: George Routledge and Sons, Ltd.; New York: E. P. Dutton and Co., 1920.) Price 7*s.* 6*d.* net.

(3) *The Venereal Problem.* By E. T. Burke. Pp. 208. (London: Henry Kimpton, 1919.) Price 7*s.* 6*d.* net.

(1) MR. JOSEPH CHAMBERLAIN set a precedent when he gave the name of "Tariff Commission" to a body created by him-

self alone. Previously the word "Commission" had been generally applied only to bodies created by Royal or Parliamentary authority, and having power to call witnesses before them, to whom each member of the Commission could put questions. Where bodies had been created for the purpose of hearing evidence tendered by voluntary witnesses, as had been done with advantage by the Charity Organisation Society, they were usually called "special committees." They are now often called "Commissions" in imitation of Mr. Chamberlain's action, and if it is clearly understood that they have no compulsory powers, there seems no harm in applying that term to them as denoting their method of action rather than the authority under which they act. In one respect they are not unlike many Royal Commissions. They consist largely of people who are known to have formed strong opinions on one side or the other, and accordingly their conclusions, if any sort of unanimity can be arrived at, are often in the nature of a feeble compromise, or, on the other hand, if both parties stand to their guns, are split into majority and minority reports. Even so, such reports may be useful as collections of facts and as presenting to the public materials for forming its own judgment.

The test, therefore, is: Are the results obtained of value? We think the report of the "National Birth-rate Commission," which has been published under the title of "Problems of Population and Parenthood," very fairly answers this test. It shows a continuous reduction in the birth-rate in England and Wales from 24 per thousand of the population in 1913 to 18 per thousand in 1918. For the further elucidation of the problems arising out of this fact, the Commission unanimously passed resolutions in favour of the establishment of a permanent Anthropometric Department under the Ministry of Health, and of a General Register. The practice of restricting the family has begun with educated and professional persons, and is gradually spreading through the whole community. That it should be so seems to be regarded by the majority of the Commissioners as inevitable, but they acknowledge the value of the unrestricted family as a training in self-sacrifice, mutual help, and efficiency, conducing to a better prospect of happiness than the restricted family in general can afford. When the practice of restriction of families is adopted, the tendency is to limit the number to that which will not restore the deficit caused by the loss of the generation that is passing. We thus get a diminishing population, leading to what has been called "race-suicide."

The conditions in which an increase of the population is not desirable do not exist in the British Empire. So far as they exist in Great Britain, emigration (as Sir Rider Haggard suggests) seems to be the right means of meeting them. The Commission reports that there is no moral issue raised in respect of the limitation of the family when there are good reasons for such a course, but that the moral difficulty arises as to the means which may be used for that purpose. Ecclesiastical authorities allow of a limitation of intercourse, which does not afford a complete security, but not of any other method. If, however, the rightfulness of the limitation be admitted, the method by which it is to be effected would seem to be a question of physiology and perhaps of æsthetics rather than one of ethics. Some of the methods suggested are repulsive, and it is to be hoped none of them will become popular.

(2) Dr. Héricourt approaches the subject from a different point of view in dealing with sterility as one of the social diseases of France, where the birth-rate has been steadily falling and depopulation in progress for many years. He attributes this to voluntary restriction, and shows that the richer inhabitants are the less fruitful, and the poorer the more fruitful. He proposes a variety of remedies, ranging from the moral encouragement of large families to the taxation of celibates and of small families. He rejects the expedient of a direct bounty from the State to the parent. He would use all legal means to suppress publications in which the limitation of families is recommended, and to prevent the sale of articles designed to effect that object.

(3) The venereal problem is a subject common to all the three volumes under review, and it is curious to note that it is only recently that it has been possible to discuss it with the freedom that all alike use. This is in some degree due to the war. Since the days when Alva brigaded his "quatre cents courtesanes à cheval, belles et braves comme princesses, et huit cents à pied, bien a point aussi," and long before, indiscriminate sexual indulgence has been one of the incidents of a time of warfare. The risk attaching to it may be mitigated by suitable measures of military discipline, but the effectual application of similar measures to the civil population would be difficult, if possible. The urgency of the problem lies in the possibility of communicating the infection to innocent persons and to unborn children, and in the loss to the community arising from the destruction of life and efficiency caused by the disease. In the face of these evils it is not necessary to discuss the old view that syphilis was a disease the risk of which was voluntarily incurred in the

performance of an immoral act. If prostitution could be abolished, venereal disease would probably in time become extinct, but no means have yet been discovered by which, mankind being what it is, prostitution can be abolished.

All the authors alike urge propaganda. The National Birth-rate Commission thinks that the Ministry of Health should direct the attention of the public to the urgent duties of citizens in the matter. Dr. Héricourt says that we must act upon the will of the individual by persuasion through fear and through interest, and mentions a work by Prof. Fournier that has been circulated by the French Society for Sanitary and Moral Prophylaxis as well calculated to effect the desired persuasion. Mr. Miall, who adds a chapter of his own to his translation of Dr. Héricourt's work, urges that proper instruction should be given in the dangers of venereal disease. Mr. Burke, who has been an acting lieutenant-colonel in the Royal Army Medical Corps, argues forcibly that the public must be made more acquainted with sexual matters, increase its knowledge of the prevalence and dangers of venereal disease, and be induced to appreciate and to assist actively in the means to be provided for treating and finally stamping out of existence those disorders. The education, he says, must begin with the child. The adult must be impressed with the importance, the reality, and the dangers of venereal disease. The medical profession must set its teeth with determination to fight the menace out of existence. Mr. Burke's treatise, which is illustrated by six diagrams, is likely to be of value in effecting the common purpose of enlightening the public on these important matters. E. B.

The Elements of Hardy Fruit Culture.

Practical Hardy Fruit Culture. By Richard Staward. Pp. 216. (London: The Swarthmore Press, Ltd., 1920.) Price 6*s.* net.

ALTHOUGH in many respects this small treatise on hardy fruit culture may be commended to beginners as a clear, concise, and elementary guide on the subject as applied to garden conditions, describing methods followed with success by the author at Panshanger Gardens, Hertford, it cannot be considered as having achieved the main purpose for which it was written. The author has set himself to provide a useful book for those, forming a numerous class at the present time, who are adopting hardy fruit culture as a business and know little or nothing of such work. The methods recommended, however, are essentially those for the private gardener, as distinct from the commercial fruit-grower. Taking the case of distances for planting trees as an example, it is advised that bush or pyramid apples on free stocks should be planted 12 ft. apart, and those on the Paradise stock from 6 ft. to 9 ft. apart. For standard apple-trees 12 ft. is mentioned as the distance, if space is limited. For commercial work these distances should be at least doubled for varieties of vigorous growth, where the trees are to be treated as permanent and not as fillers. A general criticism may also be made of the lists of varieties recommended, which are almost invariably too long, and contain sorts which are of at least doubtful commercial value.

The sections devoted to the diseases and pests of the respective fruits make mention for the most part of the more serious troubles, and of some which are relatively trivial; but there are important omissions, such as silver-leaf of plums, bitter-pit of apples, and reversion of black-currants. The remedies proposed are typical garden methods and are often inappropriate for commercial plantation use. In some cases they would appear to miss the mark entirely, as when, for instance, the spraying of black-currants with lime-sulphur, or, as the author describes it, "bisulphide of calcium," against big-bud-mite attack is advised after the fruit has been gathered. By that time the mites are safely within the cover of the newly formed buds. It may also be questioned whether the author has made the best use of the space at his disposal by dealing with such fruits as outdoor grapes, mulberries, medlars, and apricots, by description of methods of propagation which are not adopted in general practice, and by detailed accounts of the training of special forms of trees which are never considered except for particular purposes in private gardens.

The illustrations are original, and some are of interest.

Our Bookshelf.

Experiments in the Breeding of Cerions. By Paul Bartsch. (Department of Marine Biology of the Carnegie Institution of Washington. Vol. xiv.) (Publication No. 282.) Pp. 55+59 plates. (Washington: The Carnegie Institution of Washington, 1920.) Price 3 dollars.

CERIONS are land snails, well represented in the Bahamas by five species. They occur on the ground, under the edges of stones, among dead leaves, on grass, and on bushes. On an exposed place they attach themselves to the support by a thin epiphragm which also serves to prevent